

World Journal of *Clinical Cases*

World J Clin Cases 2023 December 26; 11(36): 8434-8605



Contents

Thrice Monthly Volume 11 Number 36 December 26, 2023

EDITORIAL

- 8434 Post-trans-arterial chemoembolization hepatic necrosis and biliary stenosis: Clinical characteristics and endoscopic approach

Cocca S, Carloni L, Marocchi M, Grande G, Bianchini M, Colecchia A, Conigliaro R, Bertani H

MINIREVIEWS

- 8440 Perioperative nursing care for hip arthroplasty patients with concomitant hypertension: A minireview

Ji CY, Yang LR

ORIGINAL ARTICLE

Retrospective Study

- 8447 Evaluation of response to gemcitabine plus cisplatin-based chemotherapy using positron emission computed tomography for metastatic bladder cancer

Öztürk H, Karapolat İ

- 8458 Functional magnetic resonance imaging study of group independent components underpinning item responses to paranoid-depressive scale

Stoyanov D, Paunova R, Dichev J, Kandilarova S, Khorev V, Kurkin S

EVIDENCE-BASED MEDICINE

- 8475 Mendelian randomization provides evidence for a causal effect of serum insulin-like growth factor family concentration on risk of atrial fibrillation

Lin S, Tang J, Li X, Wu G, Lin YF, Li YF

SYSTEMATIC REVIEWS

- 8486 Significance of fostering the mental health of patients with diabetes through critical time intervention

Eseadi C, Amedu AN, Aloh HE

META-ANALYSIS

- 8498 Impact of angiotensin-converting enzyme inhibitors or angiotensin receptor blockers on the mortality in sepsis: A meta-analysis

Yang DC, Xu J, Jian L, Yu Y

CASE REPORT

- 8507 Multiple sparganosis spinal infections mainly in the thoracic region: A case report

Wen GJ, Chen J, Zhang SF, Zhou ZS, Jiao GL

- 8512** Iatrogenic flexor tendon rupture caused by misdiagnosing sarcoidosis-related flexor tendon contracture as tenosynovitis: A case report
Yan R, Zhang Z, Wu L, Wu ZP, Yan HD
- 8519** Cholecystoenteric fistula in a patient with advanced gallbladder cancer: A case report and review of literature
Wang CY, Chiu SH, Chang WC, Ho MH, Chang PY
- 8527** Intraperitoneal hyaline vascular Castleman disease: Three case reports
Gao JW, Shi ZY, Zhu ZB, Xu XR, Chen W
- 8535** Iris metastasis from clear cell renal cell carcinoma: A case report
Wang TT, Chen XY, Min QY, Han YZ, Zhao HF
- 8542** Spinal cord infarction attributed to SARS-CoV-2, with post-acute sequelae of COVID-19: A case report
Oleson CV, Olsen AC, Shermon S
- 8551** Spontaneous gastric hematoma as a rare cause of acute abdomen: A case report
Budimir I, Žulec M, Eljuga K, Židak M, Lisek V
- 8557** LiNA OperaScope™ for microwave endometrial ablation for endometrial polyps with heavy menstrual bleeding: A case report
Kakinuma K, Kakinuma T, Ueyama K, Shinohara T, Okamoto R, Yanagida K, Takeshima N, Ohwada M
- 8563** Colonoscopy-induced acute appendicitis: A case report
Song XL, Ma JY, Zhang ZG
- 8568** Post-laparotomy heterotopic ossification of the xiphoid process: A case report
Lee SS
- 8574** Balloon displacement during caesarean section with pernicious placenta previa: A case report
Gu DF, Deng C
- 8581** Synchronous carotid endarterectomy and coronary artery bypass graft: Four case reports
AlGhamdi FK, Altoijry A, AlQahtani A, Aldossary MY, AlSheikh SO, Iqbal K, Alayadhi WA
- 8589** Intraoperative cardiogenic shock induced by refractory coronary artery spasm in a patient with myasthenia gravis: A case report
Hsu CW, Chang CC, Lin CS
- 8595** Effects of video game-based therapy in an adolescent with cerebral palsy: A case report
Mohd Iqbal HA, Ho WS, Zanudin A, Hisham H, Mohd Nordin NA

LETTER TO THE EDITOR

- 8603** Lyophilized recombinant human brain natriuretic peptide: A promising therapy in patients with chronic heart failure
Kourek C, Briasoulis A, Giamouzis G, Skoularigis J, Xanthopoulos A

ABOUT COVER

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WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

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RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Zi-Hang Xu, Production Department Director: Xiang Li, Editorial Office Director: Jin-Lei Wang.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Thrice Monthly

EDITORS-IN-CHIEF

Bao-Gan Peng, Salim Surani, Jerzy Tadeusz Chudek, George Kontogeorgos, Maurizio Serati

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

December 26, 2023

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INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

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PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>



Multiple sparganosis spinal infections mainly in the thoracic region: A case report

Gan-Jun Wen, Jian Chen, Shi-Fei Zhang, Zhi-Sen Zhou, Gen-Long Jiao

Specialty type: Infectious diseases

Provenance and peer review:

Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): 0

Grade B (Very good): 0

Grade C (Good): C

Grade D (Fair): D

Grade E (Poor): E

P-Reviewer: Chhabra HS, India;
Viswanathan VK, United States

Received: August 20, 2023

Peer-review started: August 20, 2023

First decision: November 1, 2023

Revised: November 14, 2023

Accepted: December 12, 2023

Article in press: December 12, 2023

Published online: December 26, 2023



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Abstract

BACKGROUND

Spinal infection with sparganosis is rarely seen, and multiple spinal infections with sparganosis in the thoracic spine have not been reported.

CASE SUMMARY

In this case report, a 56-year old male patient suffered from back pain for 3 mo. Computed tomography examination of the thoracic spine showed bone destruction of the T4-5 vertebral body, as well as the right pedicle and lamina of T5. Magnetic resonance imaging showed high signals on T2W1 images and fat-suppressed images in the right vertebral body of T4-5 and the right pedicle and lamina of T5, a high signal in the vertebral canal, and similar high signals in the paravertebral and subcutaneous regions of the whole spine. Puncture biopsy showed sparganosis. Following definite diagnosis, the patient was treated with debridement of T4-5 infected lesions under a microscope, bone grafting and internal fixation. Postoperatively, the patient's back pain symptoms were significantly relieved; the incision healed after one-stage treatment, and albendazole antiparasitic treatment was administered.

CONCLUSION

Puncture biopsy is the most reliable method to diagnose infection by sparganum. Removal of infected lesions under the microscope and albendazole for antiparasitic treatment are safe and effective.

Key Words: Sparganosis; Spine; Infection; Case report

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Core Tip: Spinal infection with sparganosis is rarely seen, and multiple spinal infections with sparganosis in the thoracic spine have not been reported.

Citation: Wen GJ, Chen J, Zhang SF, Zhou ZS, Jiao GL. Multiple sparganosis spinal infections mainly in the thoracic region: A case report. *World J Clin Cases* 2023; 11(36): 8507-8511

URL: <https://www.wjgnet.com/2307-8960/full/v11/i36/8507.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v11.i36.8507>

INTRODUCTION

Infection due to sparganum was first reported by Cobbola[1] in 1883. Sparganum is a rare parasite, which can be found anywhere in the body, including the central nervous system. In spinal sparganosis, cervical vertebra, thoracic vertebra and lumbosacral vertebra have been reported[2-7], and sparganosis in the spinal canal, epidural, subdural and intramedullary regions have also been reported[8]. However, multiple spinal infections with sparganosis in the thoracic spine, spinal canal, vertebral body and paravertebral region have not been reported.

CASE PRESENTATION

Chief complaints

A 56-year-old male patient suffered from back pain for 3 mo.

History of present illness

No special notes.

History of past illness

No special notes.

Personal and family history

The patient had a habit of eating raw beef, raw mutton and raw snake meat in the past.

Physical examination

Physical examination showed no obvious neurological damage.

Laboratory examinations

Laboratory examination results were as follows: Leukocytes and neutrophils were not significantly increased, and no obvious abnormalities in tumor markers were found.

Imaging examinations

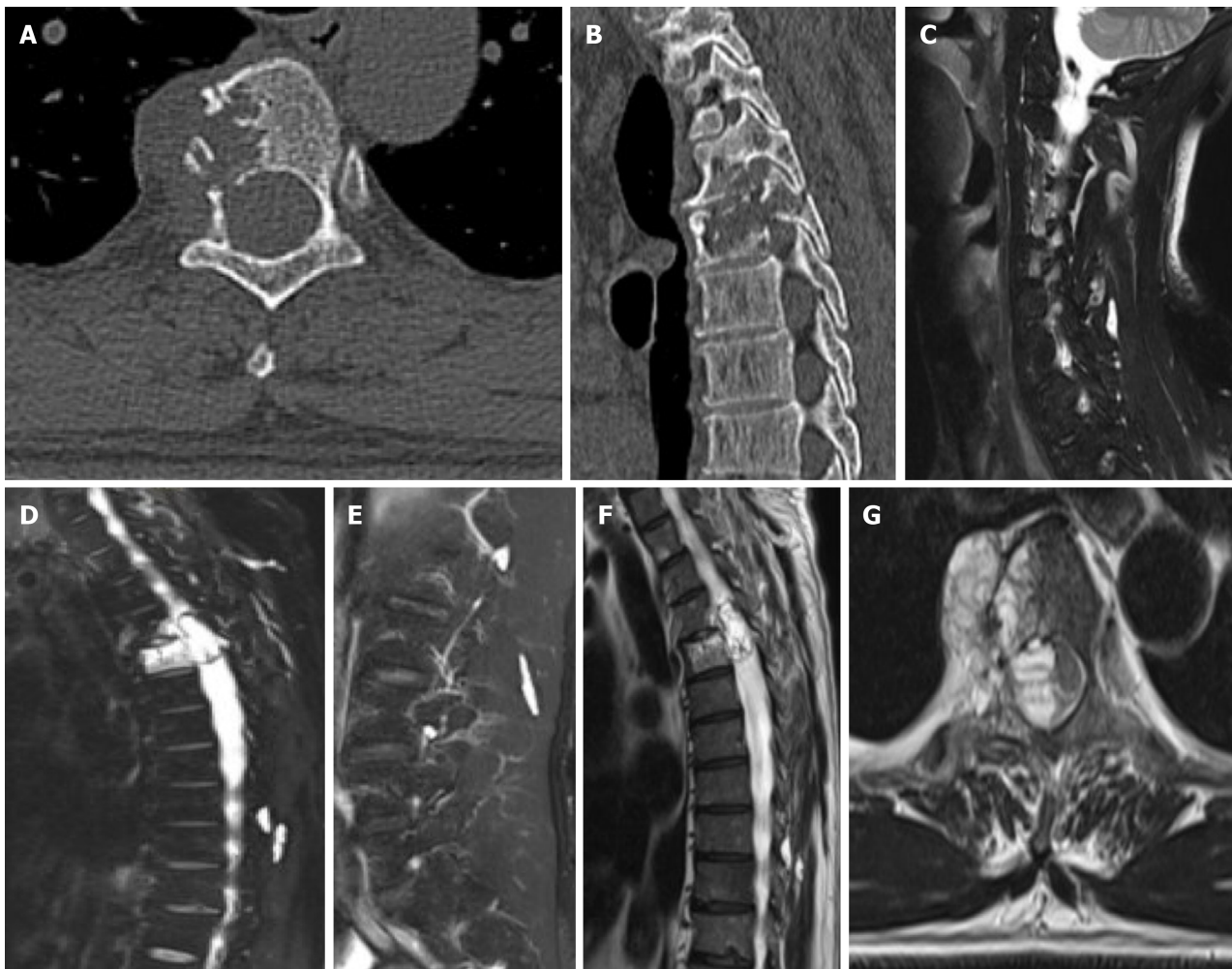
Computed tomography examination showed that bone of the T4-5 vertebral body was damaged; the right pedicle and lamina of T5 were also damaged (Figure 1A and B). Cervical, thoracic and lumbar magnetic resonance imaging (MRI) showed high signals on T2W1 images and fat-suppressed images in the right vertebral body of T4-5 and the right pedicle and lamina of T5, high signals in the vertebral canal, with similar high signals in the paravertebral and subcutaneous regions of the whole spine (Figure 1C-G).

FINAL DIAGNOSIS

The biopsy results showed that parasites were found in the punctured lesions, which was consistent with sparganosis (Figure 2).

TREATMENT

The patient was treated with debridement of T4-5 infected lesions, bone grafting and internal fixation. Postoperatively, the patient was treated with albendazole for 3 mo (Video).



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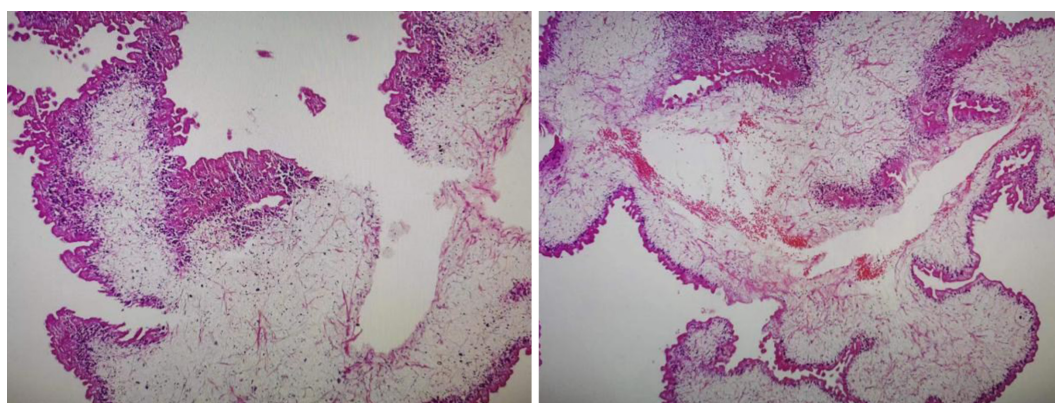
Figure 1 Computed tomography. A and B: Computed tomography examination of the thoracic spine showed bone destruction of the T4-5 vertebral body, the right pedicle and lamina of T5; C-E: Cervical, thoracic and lumbar magnetic resonance imaging showed multiple nodules with high signals on fat-suppressed images in the paravertebral and subcutaneous regions; F and G: High signals in the right vertebral body of T4-5, the right pedicle and lamina of T5 and high signals in the vertebral canal.

OUTCOME AND FOLLOW-UP

Following surgery, the patient's back pain symptoms were significantly relieved, and there was no neurological damage. The incision healed after one-stage treatment. One week after surgery, the patient could walk normally with a brace. Nine months after surgery, the patient had no obvious back pain, MRI showed significant absorption of the lesions, and the anteroposterior and lateral radiographs suggested that local curvature and the screw positions were satisfactory (Figure 3).

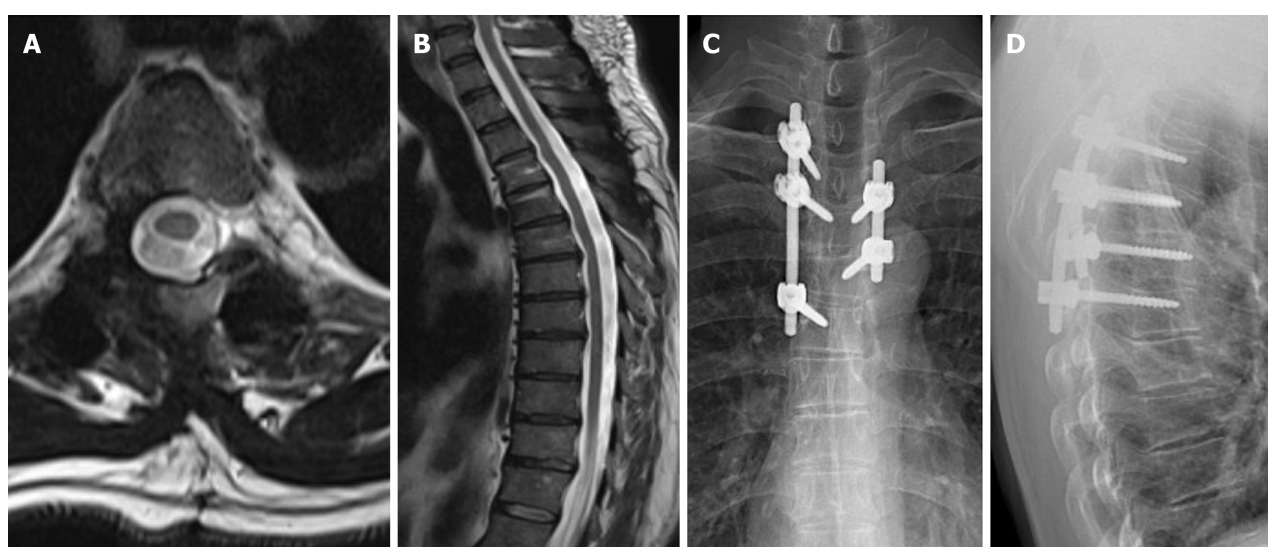
DISCUSSION

Spinal sparganosis is a very rare disease. In particular, thoracic spine sparganosis with multiple infections in the spinal region has not been reported. For the diagnosis of sparganosis, anti-sparganum antibodies in serum or cerebrospinal fluid can be detected by enzyme-linked immunosorbent assay (ELISA). The sensitivity of this diagnostic technique can reach 85.7%-100%, and the specificity can reach 95.7%[9]. In 2014, Yamasaki *et al*[10] proposed a new detection technology for sparganosis, the iSpaICT kit, which is faster and easier than ELISA, with better sensitivity and specificity. Sparganosis is extremely rare, and laboratory testing is not routinely carried out in most Chinese hospitals. In the present patient, MRI of the spine showed a cystic lesion located in T4-5 compressing the spinal cord, many minor mass-like lesions were located in the paravertebral and subcutaneous regions of the spine, and the MRI features were very similar to literature reports[3, 11]. Puncture biopsy is the most effective and reliable method for diagnosing sparganosis. However, for sparganosis in the vertebral canal, subdural region, spinal cord or brain, puncture biopsy is very risky, and sometimes cannot be performed. Accordingly, these cases require to be confirmed by laboratory examinations or after focal resection. Our patient underwent a puncture biopsy on the third day after admission, and the lesion was easily visualized under



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Figure 2 High power microscopic view of the parasite. The body of the parasite has degenerated and calcareous bodies are not readily discerned, but the outer layer of the tegument was preserved.



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Figure 3 Magnetic resonance imaging. A and B: At nine months after surgery, magnetic resonance imaging showed significant absorption of the lesion; C and D: Anteroposterior and lateral radiographs suggested that local curvature and the screw positions were satisfactory.

fluoroscopy. The biopsy sample was submitted for examination and culture, but no bacteria were cultured. Parasites were seen under the microscope, and a small quantity of calcareous corpuscles was seen below them, which conformed to the shape of sparganosis. Broken striated muscle tissue and dead bone tissue were also seen, in addition to an inflammatory reaction. When the pathological diagnosis was confirmed, the patient was asked about his past history. The patient had a habit of eating raw beef, raw mutton and raw snake meat.

Following the diagnosis of sparganosis, posterior thoracic 4-5 lesion removal, bone grafting and internal fixation were performed. Compared with tumor resection, the removal of sparganosis lesions is less difficult. There is no need to embolize the blood vessels before surgery, and bleeding during surgery is easily controlled. During surgery, neuroelectrophysiological monitoring was used and the infected lesion was removed under the microscope, which enhanced the safety of surgery and ensured the thoroughness of lesion removal. After thorough removal of the dead bone and the lesion in the vertebral body, bone grafting was performed using the posterior resected vertebral lamina and small articular processes as the bone graft materials. Due to instability in this region, we implanted the pedicle rod system for internal fixation. The pedicle in the right side of the T5 was damaged. The left sides of T4 and T5 were fixed, and the right sides of T3-6 were fixed.

Postoperatively, antiparasitic treatment was considered very important, and the drug of choice in the literature[3,12] for sparganosis is praziquantel. However, the patient experienced dizziness, chest tightness, nausea and vomiting after taking praziquantel, and switched to albendazole for 3 mo. Nine months after surgery, the patient had no obvious back pain, and MRI showed significant absorption of the lesions. Thus, treatment was considered safe and effective.

CONCLUSION

Spinal infection with sparganosis is a rare event. We report an uncommon case of thoracic spine sparganosis with multiple sites of infection. Puncture biopsy is the most effective and reliable method for diagnosing sparganosis. Removal of infected lesions under a microscope and albendazole antiparasitic treatment was safe and effective ([Video](#)).

FOOTNOTES

Author contributions: Wen GJ, Chen J, Zhou ZS, Zhang SF, and Jiao GL contributed equally to this work; Wen GJ wrote the manuscript; all authors have read and approved the final manuscript.

Informed consent statement: Written informed consent was obtained from the patient for the publication of this case report.

Conflict-of-interest statement: All the authors report no relevant conflicts of interest for this article.

CARE Checklist (2016) statement: The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

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S-Editor: Liu JH

L-Editor: Webster JR

P-Editor: Zhang YL

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